New Insights in Pediatric Urology

Highlights From the American Academy of Pediatrics Section on Urology Meeting, October 10-13, 2008, Boston, MA

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The American Academy of Pediatrics (AAP) Section on Urology's annual meeting was held as part of a Joint Pediatric Urology Meeting in Boston, MA, on October 10-13, 2008. The joint sessions included the AAP Section on Urology, the AAP Pediatric Urology Nurse Specialists (PUNS), and the International Children's Continence Society (ICCS).

One hundred sixteen papers and posters were presented on a wide range of topics including cryptorchidism, genitourinary (GU) tumors, varicocele, exstrophy, sexual differentiation, reflux, hypospadias, neurogenic bladder, hydronephrosis, valves, and voiding dysfunction. There was a significant emphasis on papers dealing with diurnal and nocturnal incontinence.

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Dr. Michael Mitchell was chosen to receive the Pediatric Urology Medal. He has made innumerable contributions to pediatric and reconstructive urology. Dr. Mitchell has furthered our understanding of the pathophysiology of the bladder of children with posterior urethral valves and coined the term *valve bladder*. He emphasized the important role of early bladder cycling and the primary valve ablation approach for almost all patients with valves. He has pioneered the development of the complete primary repair of bladder exstrophy.

The meeting was extremely well attended by pediatric urologists from North America, South America, Europe, and Asia. Several of the clinical research abstracts are highlighted below.

Lower Urinary Tract Symptoms

There has been growing interest in the association between adult lower urinary tract symptoms (LUTS) and childhood urinary disorders. Kaye and colleagues[1] investigated whether childhood lower tract pathology predisposes to the development of adult interstitial cystitis (IC) in women. One hundred forty-one women diagnosed with IC using the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) criteria completed a standardized questionnaire pertaining to childhood urologic history and their current symptoms. Cystoscopy excluded other etiologies for their LUTS. A control group of 150 adult women without LUTS was identified. The mean age of the adult IC patients was 52.5 years and the mean age for the control group was 48.9 years. Of the IC group, 51 of 141 (36.1%) versus 2 of 150 (1.3%) controls had a history of significant pediatric lower tract pathology ($P < .001$). Only 1 of 51 women reported symptoms of urgency, frequency, enuresis, and encopresis, versus only 1 of the 2 controls with symptoms. Only 4 of 51 reported being infrequent voiders, whereas none of the controls reported this problem. Of the 141 subjects, 20 had

childhood urinary tract infections, whereas only 1 of the control patients had an infection. The authors observed that in those patients who had significant urologic histories as children, there appears to be a mean lag time of about 9.1 years until the onset of the IC symptoms in adulthood.

Undescended Testis

Johnson and coworkers[2] reported their 25-year experience (1982-2007) with the 2-stage Fowler-Stephens (FS) orchiopexy for intra-abdominal testis. All of the first-stage division of the internal spermatic vessels were performed laparoscopically and the second stage was performed 6 months later via laparoscopy (33%) or open technique (67%). Outcomes were based on the most recent testicular examination or testicular ultrasound measurements. The authors report 51 patients, of whom 18 had bilateral intra-abdominal testes. The average length of follow-up was 4.5 years. Of 69 intra-abdominal testes, 57 (83%) were viable and 17 of 57 (33%) exhibited some degree of atrophy at their most recent examination. Of the testes managed laparoscopically, 17 of 23 (73%) were viable compared with 40 of 46 (87%) testes treated with open surgery. This study shows that the staged FS orchiopexy has an 83% success rate. The authors postulate that some of the testes that were viable initially, but were ultimately small, did not grow due to inherent developmental gonadal dysplasia. The open approach appears to provide some greater testicular viability compared with laparoscopy.

Stec and colleagues[3] evaluated factors predicting success in orchiopexy for intra-abdominal testis (IAT). They evaluated 136 of 170 patients with IAT who had sufficient follow-up. Of these, 20 had bilateral intra-abdominal testes, totaling 156 intra-abdominal testes. The median age at surgery was 12 months with a median follow-up of 16 months. Success was defined as an intrascrotal testis that was normal on palpation and comparable in size to the contralateral testis at follow-up. A 1-stage abdominal orchiopexy was performed in 92 testes with a success rate of 89.1%. One-third of these (32) were performed laparoscopically with a success rate of 96.1%. A 1-stage FS procedure was performed in 27 testes and 17 (63%) had successful outcomes. A 2-stage FS procedure was performed in 37 testes and 25 (67.6%) were successful. A multivariant analysis showed that 1-stage orchiopexy without division of the vessels was associated with greater success when compared with 1-stage (odds ratio [OR] 0.24; $P = .007$) or 2-stage FS (OR 0.29; $P = .19$) orchiopexy. These authors report that the overall success for orchiopexy for the IAT was 79.5%. They conclude that maintenance of the internal spermatic vasculature yielded significantly more success and the laparoscopic approach with a 1-stage orchiopexy was associated with the least testicular loss.

Enuresis

Dyer and colleagues[4] examined the use of imipramine for refractory nocturnal enuresis. Imipramine was one of the initial pharmacotherapies for nocturnal enuresis (NE), but after case reports of unfavorable side effects it fell into disuse. The only documented adverse reactions occur when there is overdosing. The literature has shown that imipramine acts centrally at the cortical level to correct nocturnal enuresis, and Hjalmas and colleagues[5] have shown that a combination of desmopressin acetate and imipramine is effective in nocturnal enuretics. Of more than 2000 children evaluated for enuresis, 30 were refractory to conventional therapy.[4] Treatment consisted of 0.6 μg of desmopressin acetate and a starting dose of 10 to 25 mg of imipramine over a 3- to 4-week period. Imipramine was titrated to 50 mg in nonresponders. The authors report that 25 of 30 patients had significant improvement with an average time to response of 1 month. Three patients showed no improvement, and in 2 there was insufficient follow-up time to determine their progress. One of the patients felt "weepy," which has been previously associated with imipramine. To date, 3 of 30 patients have been weaned from imipramine and have continued to be continent. One of the patients, who was initially dry, became incontinent again. The authors conclude that combination therapy is a viable treatment alternative for patients with refractory nocturnal enuresis.

Vesicoureteral Reflux

Cerwinka and colleagues[6] evaluated the selective treatment of the nonrefluxing but hydrodistensible contralateral ureter during treatment of unilateral primary reflux. The literature has shown that up to 15% of children will demonstrate new contralateral vesicoureteral reflux (NCVUR) after antireflux surgery and may require additional procedures. They evaluated 277 of 746 treated (33%) with unilateral primary vesicoureteral reflux (VUR) using dextranomer/hyaluronic acid copolymer. Prior to September 2006, there was a 12.6% incidence in 30 cases of the NCVUR. About 75% had grade 1-2 VUR and 25% had grade 3. Since September 2006, the nonrefluxing contralateral ureter (NRCU) (n = 39) at high risk for NCVUR (hydrodistension grades H2-H3) were treated, whereas low-risk (H0, H1) ureters were not. A voiding cystourethrogram (VCUG) was performed 2 to 4 months following the procedure. Since

September 2006, 39 patients were treated using the double hydrodistention implantation technique (HIT) method with a mean volume of 1.3 mL and the contralateral ureter was assessed. Hydrodistension in the nonrefluxing contralateral ureter was H0 in 10%, H1 in 21%, H3 in 51%, and H4 in 18%. Contralateral treatment was performed in 27 of 39 patients (69%) for H2 (74%) and H3 (26%) ureters. In about one-half of these patients no additional vials were used and no complications occurred. Since September 2006, when H2-H3 ureters were injected, there has been no postoperative NCVUR. The authors suggest that selective treatment of H2 and H3 ureters reduces the incidence of NCVUR.

Traxel and colleagues[7] reviewed patients who had undergone endoscopic treatment with dextranomer/hyaluronic acid copolymer and report on risk factors for postoperative urinary tract infection. The risk factors were analyzed in a logistic regression model and the factors chosen for analysis included female gender, preoperative grade, recurrent infection prior to treatment, voiding dysfunction, and persistent VUR following injection therapy. Success was defined as no reflux on the 3-month postoperative VCUG. A total of 311 children (464 renal units) were treated between 2002 and 2007. The mean age was 5.7 years with a mean follow-up of 2.6 years. Patients were primarily girls (87%) and most (85%) presented with an infection. Postoperative infection occurred in 37 patients (12%), but only 9 of 37 had an associated fever (3%). Fifteen patients with no reflux on the 3-month postoperative VCUG developed a urinary tract infection. Of these, 8 of 15 had recurrent VUR on follow-up imaging, 4 of whom had clinical pyelonephritis. Preoperative recurrent UTI (OR 2.2; $P = .03$) and dysfunctional voiding (OR 3.3; $P = .001$) were significant factors for recurrent UTI. Those with persistent VUR after injection therapy trended toward a higher risk of infection, but did not attain statistical significance. The authors conclude that although infections are uncommon after endoscopic therapy for VUR, a postinjection febrile infection has a 50% risk of having recurrent reflux when the VCUG showed no reflux at 3 months. Patients with recurrent infection and voiding dysfunction preoperatively have an increased risk of developing infection following treatment. ■

References

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